



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,873	12/21/2001	Richard L. Knipe	TI-26153	1022
23494	7590	02/19/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			CHOI, WILLIAM C	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/027,873	KNIPE, RICHARD L.	
	<b>Examiner</b>	<b>Art Unit</b>	
	William C. Choi	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 January 2004.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6,8-10 and 12-31 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 19-31 is/are allowed.  
 6) Claim(s) 1-6,8-10 and 12-17 is/are rejected.  
 7) Claim(s) 18 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Examiner's Comment*

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6, 8, 9, 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Gale et al (U.S. 5,444,566).

In regards to claim 1, Gale et al discloses a micromechanical device (Figure 1a) comprising: a semiconductor substrate (column 2, line 66, Figure 1a, "34"); at least one member operable to deflect about a torsion axis to either of at least two states (Figures 1a-1c, "26"); a switch associated with each said at least one member (column 8, lines 48-59, Figure 16, "198" and "199") for selectively connecting said member to a ground signal (abstract, lines 11-13 and column 1, lines 53-57).

Regarding claim 2, Gale et al discloses said device further comprising: a memory cell for storing positioning information, said memory cell having an output driving said switch (column 6, lines 14-34 and column 8, lines 35-55, Figure 16, "186").

Regarding claims 5 and 6, Gale et al discloses said device comprising a bias electrode on either side of said torsion axis (column 2, line 68 – column 3, line 1, Figure 1b, "28" and "30"), which would inherently be electrically connected, this being reasonably assumed from the electrodes being connected to the same mirror bias circuit (column 8, lines 25-37, Figure 16).

Regarding claim 8, Gale et al discloses said switch comprising a pass transistor (column 8, lines 35-53, Figure 16, "198" and "199").

Regarding claim 9, Gale et al discloses wherein said member is a micromirror (column 2, lines 53-65, Figure 1a, "26").

In regards to claim 14, Gale et al discloses a micromechanical device comprising: at least one deflectable member supported by a torsion hinge and spaced apart from a substrate (Figure 1a, "26"); at least two bias electrodes supported by said substrate, one on each side of an axis of said torsion hinge (Figure 1b, "28" and "30"); and a means (column 8, lines 48-59, Figure 16, "198" and "199") associated with each said at least one deflectable member for selectively connecting said deflectable member to a ground signal (abstract, lines 11-13 and column 1, lines 53-57).

Regarding claims 15 and 16, Gale et al discloses wherein said means for selectively electrically connecting comprising a pass transistor (column 8, lines 35-53, Figure 16, "198" and "199") for electrically connecting said deflectable member to said ground potential (abstract, lines 11-13 and column 1, lines 53-57).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gale et al (U.S. 5,444,566) as applied to claim 1 above, and further in view of Gale et al (U.S. 5,285,407).

Regarding claim 3, Gale et al (U.S. 5,444,566) discloses said device comprising a memory cell for storing positioning information (column 6, lines 14-34) but does not specifically disclose said memory cell comprising a capacitor storing a charge representing said positioning information. Gale et al (U.S. 5,444,566) does teach, however, the use of the memory cell of (U.S. 5,285,407) of the same inventorship, in his device (column 6, lines 58-63). Gale et al (U.S. 5,285,407) teaches a memory cell comprising a capacitor (Figure 4, "32", "C1" and "C2"), which inherently will store a charge representing said positioning information. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the memory cell of Gale et al (U.S. 5,444,566) to comprise a capacitor storing a charge representing said positioning information since Gale et al teaches its specific use in his device.

Regarding claim 4, Gale et al (U.S. 5,285,407) further teaches said memory cell comprising a pass transistor (column 6, lines 8-13).

Regarding claim 10, Gale et al (U.S. 5,285,407) further teaches wherein said means comprises: a pass transistor having a gate and two terminals, said gate connected to said memory capacitor, one said terminal connected to said member and a second said terminal connected to a voltage connection (Figure 4).

Regarding claims 12 and 13, Gale et al teaches wherein said memory cell is operable to turn on and off said pass transistor when said memory cell capacitor holds a first charge and second charge respectively (column 3, lines 61-68).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gale et al (U.S. 5,444,566) as applied to claim 14 above, and further in view of Gale et al (U.S. 5,285,407).

Regarding claim 17, Gale et al (U.S. 5,444,566) discloses as set forth above, but does not specifically disclose wherein said means for selectively electrically connecting comprising: a pass transistor; and a capacitor connected to a gate terminal of said pass transistor. Gale et al (U.S. 5,444,566) does teach, however, the use of the memory cell of (U.S. 5,285,407) of the same inventorship, in his device (column 6, lines 58-63). Gale et al (U.S. 5,285,407) teaches wherein said means for selectively electrically connecting comprising: a pass transistor; and a capacitor connected to a gate terminal of said pass transistor (Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for said means of Gale et al

(U.S. 5,444,566) to comprise a pass transistor; and a capacitor connected to a gate terminal of said pass transistor since Gale et al teaches its specific use in his device.

***Allowable Subject Matter***

Claims 19-24 and 25-31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 19-24: a method of operating a micromechanical device as claimed, specifically comprising electrically floating a deflectable member such that a reset signal does not reposition the electrically floating deflectable member.

The prior art fails to teach a combination of all the claimed features as presented in claims 25-29: a method of operating an array of micromechanical elements as claimed, specifically comprising grounding a deflectable member of a first group of said micromechanical elements; allowing a deflectable member of a second group of said micromechanical elements to electrically float; and applying a reset signal to bias electrodes associated with said micromechanical elements in said first and said second groups.

Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to teach a combination of all the claimed features as presented in claim 18: a micromechanical device as claimed specifically wherein said means for

selectively electrically connecting comprises: a second terminal of a capacitor connected to a ground potential.

***Response to Arguments***

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-

Art Unit: 2873

2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W.C

William Choi  
Patent Examiner  
Art Unit 2873  
February 9, 2004



Georgia Y. Epps  
Supervisory Patent Examiner  
Technology Center 2800